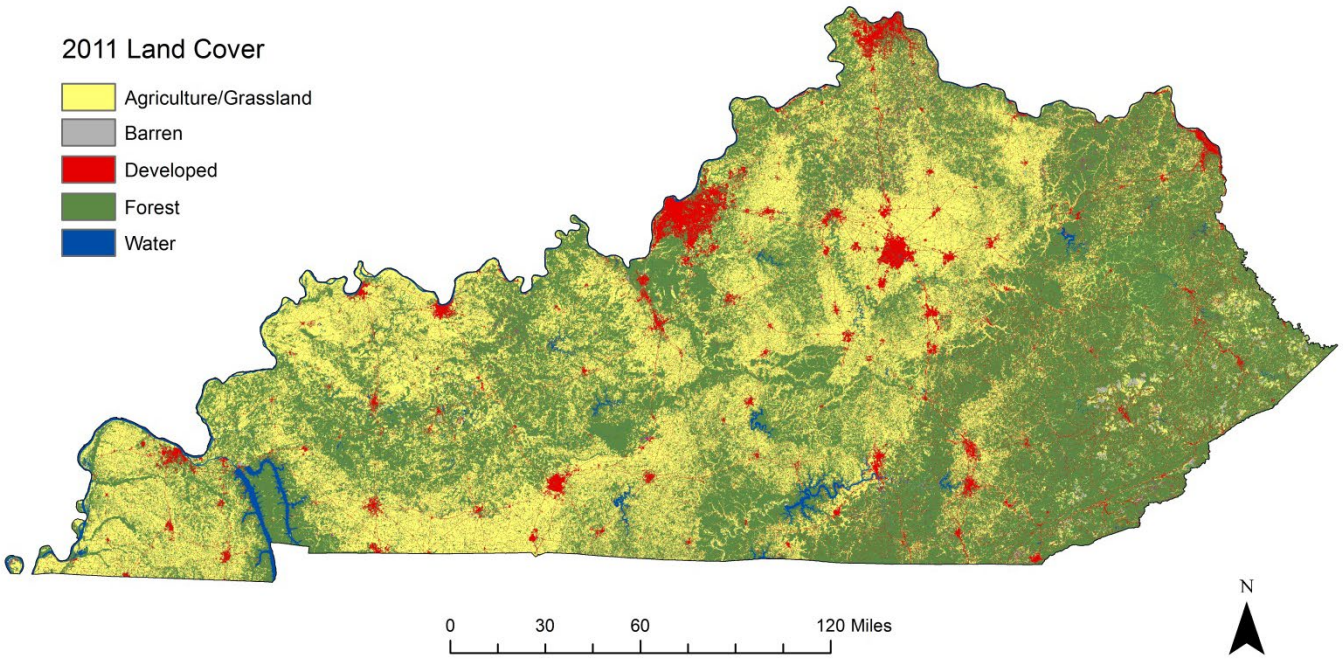
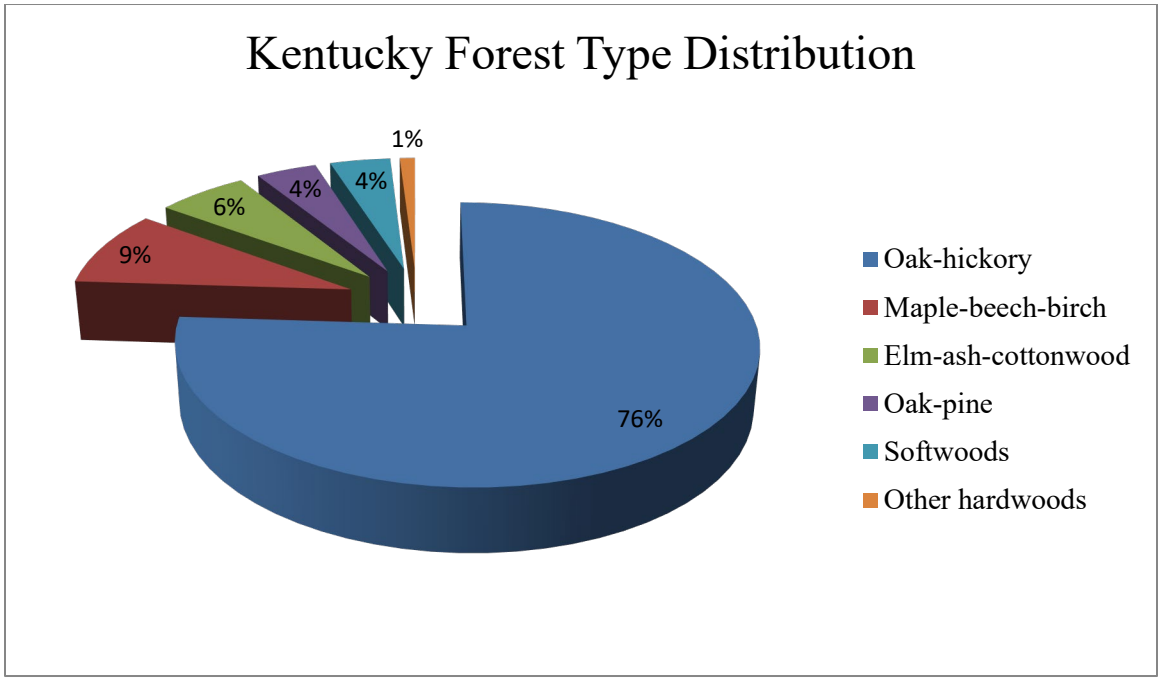
Kentucky

Forest Health Highlights 2018

The Resource

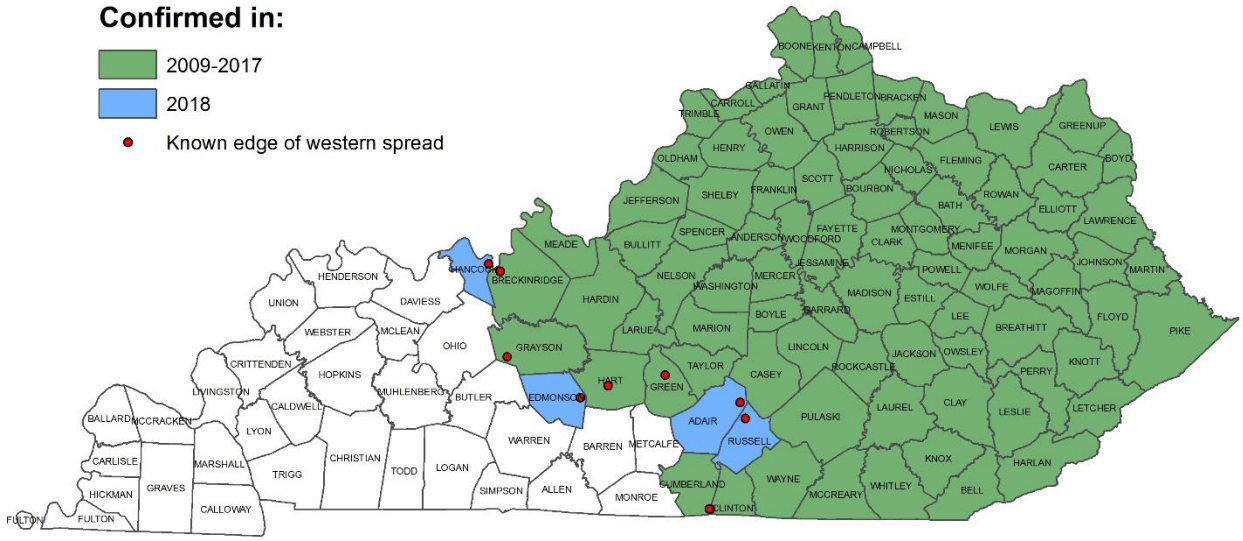
Kentucky's forests cover an estimated 12.4 million acres, nearly 49% of the state's land area. The Cumberland Plateau and the Appalachians in the eastern part of the state represent the most heavily forested areas, with forests covering more than 80% of the land area in many of these counties. The majority of the state's forested land (88.5%) is privately owned. Kentucky's forests are prized for their scenic beauty, supporting tourism and outdoor recreation and providing wildlife habitat from the Appalachian Mountains in the east to the Mississippi Valley in the west. The predominant forest type in Kentucky is oak-hickory, covering nearly 9.5 million acres (76% of the forested land). The most common species based on number of trees across all forest land is red maple, followed by sugar maple and yellow-poplar.


2011 Land Cover
Agriculture/Grassland
Barren
Developed
Forest
Water
0
30
60
120 Miles
N


Kentucky Forest Type Distribution
76%
9%
6%
4%
4%
1%
Oak-hickory
Maple-beech-birch
Elm-ash-cottonwood
Oak-pine
Softwoods
Other hardwoods

Insects

Emerald Ash Borer

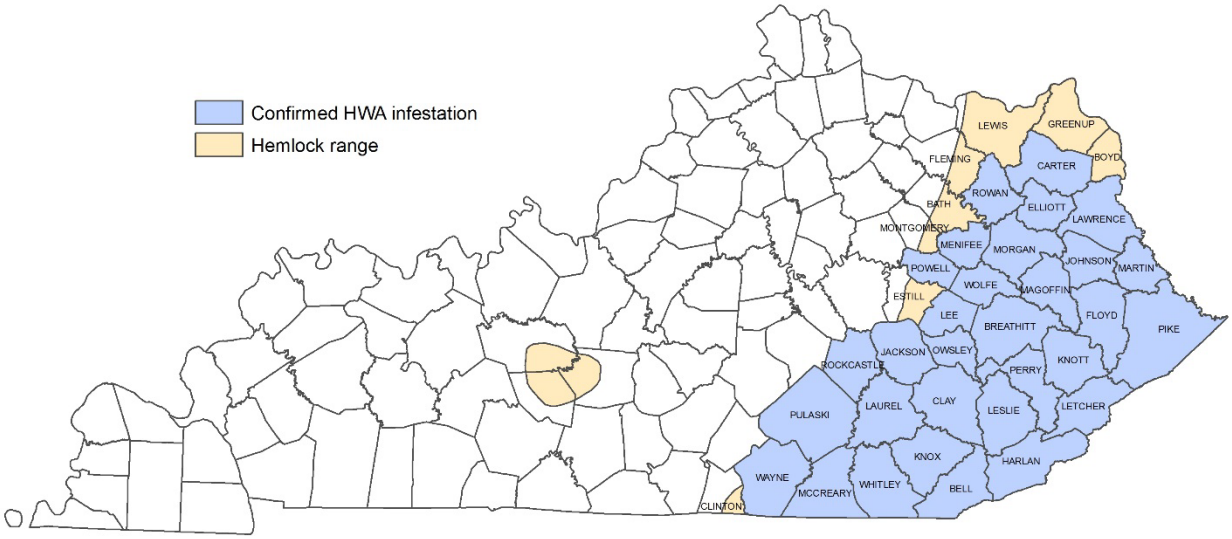


Infestations of the emerald ash borer (EAB) were first confirmed in Kentucky in 2009. An EAB quarantine of 20 counties located in the region between Louisville, Lexington, and northern Kentucky was initially established. In the following years, additional EAB infestations were found in nearby counties and the state quarantine was expanded. In April of 2014, the county quarantine system was rescinded and the entire state was added to the Animal and Plant Health Inspection Service (APHIS) list of regulated areas. Currently, EAB has been confirmed in 89 Kentucky counties. In 2018, EAB was confirmed in four new counties: Adair, Edmonson, Hancock, and Russell. EAB will eventually impact ash resources across the entire state as the infestation continues to spread into western Kentucky.

Hemlock Woolly Adelgid

Hemlock woolly adelgid (HWA) was first discovered in Kentucky in 2006. Approximately 98% of Kentucky's hemlocks are found in the eastern one-third of the state. In this region, infestations currently occur in 31 counties. The counties include Bell, Breathitt, Carter, Clay, Elliott, Floyd, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Magoffin, Martin, McCreary, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, and Wolfe

Kentucky Division of Forestry (KDF) has a crew responsible for treating hemlocks with insecticide in order to suppress hemlock woolly adelgid populations to prolong survival of this ecologically significant tree. Treatments began in 2009 on Kentucky State Forests and has since expanded to include properties managed by Kentucky State Parks, Kentucky State Nature Preserves Commission, KDFWR Wildlife Management Areas, and Daniel Boone National Forest. Since 2009, KDF has chemically treated over 157,000 hemlock trees.



Yellow-poplar weevil

Much of eastern Kentucky experienced an outbreak of the yellow-poplar weevil. Generally this native insect is considered a minor pest but the weevil was reported at higher than normal levels this year. Reports of yellow-poplar trees with browning tops began in June. Ground surveys concluded that the majority of counties in south eastern Kentucky had either minor or intermediate levels of damage. In areas of heavy feeding trees experienced partial defoliation. No long term damage is expected though, as impacted trees did not experience other stressors such

as drought this season. General observations indicated that many of the impacted trees had put on a new flush of leaves by August to replace those defoliated earlier in the season.

Scarlet oak sawfly

In late June, multiple reports of browning oak trees in Magoffin County were received. Initial picture evidence suggested the browning to be caused by insect feeding. A ground survey was conducted in Magoffin County in July and insects later identified as scarlet oak sawfly were found feeding on oaks in the area. Information was sent out to field staff and reports of similar damage came back from isolated areas in Letcher and Pike Counties. No long term damage is expected from this periodic pest of oak trees.

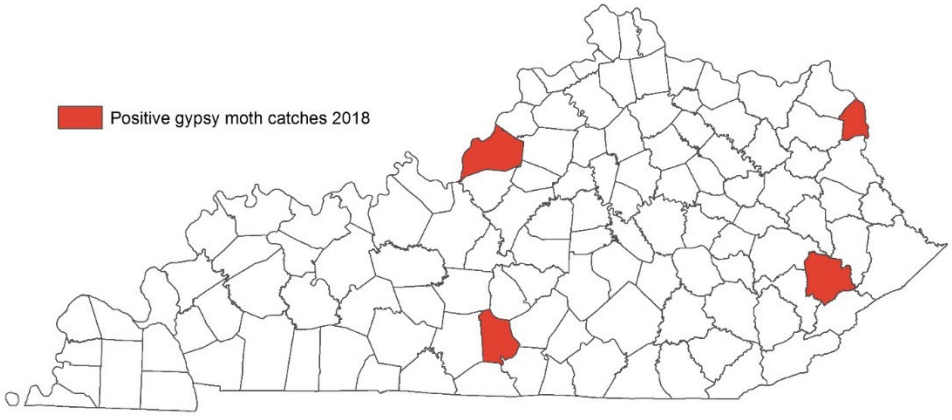
Larger elm leaf beetle, walnut caterpillar, locust leaf miner and bagworms

Other insect activity, but at local levels and with minimal impacts, was reported throughout the state. The larger elm leaf beetle was identified as the culprit of minor defoliation on elm in woodlands and along roadways in northeast Monroe County. A separate localized defoliation event occurred in Marion County in which walnut caterpillar feeding caused minor damage to a walnut plantation.

Damage from the locust leaf miner is common almost every year in parts of Kentucky. Outbreaks vary in intensity and location from year to year. General observations are used to record areas that experience damage each year. In 2018, most of the damage occurred in north central and north eastern Kentucky counties. No damage was reported in south central Kentucky this year, though it has been common in the past. Another common pest, especially of landscape trees, is the common bagworm. Reports of damage on eastern red cedar were higher than normal in 2018. Minor defoliation occurred in parts of Anderson, Casey, Mercer, and Washington Counties, with some pockets of extensive feeding damage in these areas.

Gypsy moth

Gypsy moth is not yet established in Kentucky. Kentucky's Office of the State Entomologist annually traps for gypsy moth using detection surveys through USDA APHIS and Slow the Spread programs. Traps were placed in 100 counties across the state. Four positive traps were found across four counties with a total of four moths captured. Counties with positive traps include Boyd, Jefferson, Knott, and Metcalfe. Trap catches were down from 2017 (12), 2016 (68), and 2015 (171).



Asian Longhorned Beetle

The Asian longhorned beetle (ALB) continues to be a potential pest of concern for Kentucky. Though ALB has not been found in Kentucky, it was discovered in 2011 in Clermont County, Ohio, which is only 10 miles from the Kentucky border. KDF works with various agencies to educate the public on ALB identification and signs of infestation.

Diseases

Thousand Cankers Disease and the Walnut Twig Beetle

KDF placed 8 funnel traps in five northern Kentucky counties to trap for the walnut twig beetle associated with thousand cankers disease (TCD). Kentucky is a neighbor to four states that have confirmed TCD infestations (Indiana, Ohio, Tennessee and Virginia), but to date it has not been found in Kentucky. Trapping for the walnut twig beetle will continue in 2019.

Anthracnose and cedar apple rust

Foliar diseases are common on a number of tree species in Kentucky. Diseases that benefit from wetter than average springs, anthracnose and cedar apple rust, were common this year. Anthracnose is caused by a number of different species of fungi that are associated with specific plants, but all cause similar symptoms. Common tree groups impacted include ash, oak, maple, dogwood and sycamore. Symptoms can be seen in the spring and include irregular brown spots on leaves and leaf distortion. Another disease, cedar apple rust, was a minor issue on eastern red cedar trees across much of north central and north east Kentucky. This is likely attributed to the heavy and prolonged rains in March and April throughout much of the state.

Bacterial Leaf Scorch

Bacterial leaf scorch is caused by a disease that impacts a number of tree species including elm, maple, oak, and sycamore. Symptoms include a scorched leaf appearance that can begin to appear in July and progressively gets worse through the end of summer. Symptoms occur annually as the disease progresses through the crown. Leaf scorch occurs as a result of a bacteria growing inside the tree's vascular tissue where it blocks water movement. Reduced growth and branch dieback soon follow, resulting in a slow decline and eventual death of the tree. Bacterial leaf scorch is common on red oak species, especially pin oak, in urban areas.

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Guignardia Leaf Blotch, and Tubakia Leaf Spot

Other diseases can be common when there are periods of persistent rain during the summer and early fall months and two examples include *Guignardia* leaf blotch and *Tubakia* leaf spot. These diseases were observed in certain parts of the state that received higher than average rain fall this year. Disease symptoms of *Guignardia* leaf blotch start as small lesions on leaflets and over time expand into larger dark brown blotches. In 2018, the majority of impacted trees were reported in shaded cove areas in Cumberland and Monroe Counties. *Tubakia* leaf spot was common on sporadic oak trees in northern Kentucky. Boone and Gallatin Counties were observed to have the most noticeable number of impacted trees. Again, this late season fungal damage is most likely attributed to the prolonged rains that occurred in the area during August.

Unknown

Multiple reports of oak trees with cupped leaves came in from the Elizabethtown area in 2018. The leaf cupping looks similar to herbicide damage, but surveys found sporadic impacted trees in woodlands, woodland edges, and yard trees across most of the city, making it unlikely that the majority of impacts were from herbicide drift. Samples were sent for diagnostic testing and no diseases were found present on the leaves. The exact cause is unknown at this point but is suspected that fluctuating weather patterns may play a part. An early warm up in mid to late February that had many days in the 60's, was followed by a return to cooler weather with late frosts in late March and early April and could have impacted leaf development in these oak species. The area will be surveyed throughout 2019 in order to assess any possible causal agents.

References:

- Kentucky's Office of the State Entomologist provided data from their gypsy moth survey.
- 2011 Land Cover data was obtained from the National Land Cover Database.
- Photos with image numbers taken from Bugwood.org

Forest Health Assistance in Kentucky

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